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METHOD FOR REGISTERING AND UPDATING DOCUMENT TO  
SHARED DOCUMENT MANAGING DEVICE  
[Kyouyuu bunsho kanri souchi e no bunsho touroku · koushin houhou]

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[Claim 1] With respect to a system which is composed of a document sharing server utilized on a network and clients who prepare and view shared documents, a method for registering and updating documents to a shared document managing device, characterized by:

a user preparing a document and sending the prepared document as a file attachment of electronic mail to a registration-only destination address;

this sent electronic mail becoming loaded to determine the registration location in a storage device, from which the document sharing server reads, based on the sender address included in the header information as well as the user information, such as the mail address, registration location, personal certificate, etc., defined in the server in advance; and

the file attachment becoming registered.

[Claim 2] A method for registering and updating documents to a shared document managing device, characterized by:

a conversion command being described in the main text of the electronic mail sent from the client according to Claim 1; and

the file attachment of the above mail becoming converted before being registered in the document sharing server.

[Claim 3] A method for registering and updating documents to a shared document managing device, characterized by:

user-optional registration location information being described in

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\* Numbers in the margin indicate pagination in the foreign text.

the main text of the electronic mail sent from the client according to claim 1 in order to update, if desired, the registration location information to a location other than the registration location defined in the user information.

[Detailed Description of the Invention]

[0001] [Field of the Invention]

The present invention relates to a method for registering and updating a document to a common device when sharing the document via a network, specifically to a registering technique for an information sharing server (e.g., WWW server, FTP server) via the Internet or intranet.

[0002] [Related Art]

In recent years, the number of subscribers to the WWW (World Wide Web) of the Internet and intranets as convenient media for information transmission and sharing has exploded. Through this WWW, multimedia information in which characters, images, sounds, etc. are combined can be readily transmitted to unspecified number of people. Data for this can be generated by using several types of description languages (mainly HTML) and program languages and is associated with adjunct data such as images and/or audio.

[0003] In order to transmit document information via the current WWW, it is generally necessary for the client to generate a file group (e.g., HTML file, image/audio data, etc.) that will make up a page on the WWW and to then copy it onto a WWW server, which is a shared document managing device. For this, FTP (File Transfer Protocol) is often utilized, and the knowledge on FTP is therefore required.

[0004] As another method for registering to the shared document managing device, it is possible to collect and transmit information from an unspecified number of people by using CGI (Common Gateway Interface) of the WWW, but since it is necessary to stay connected to the Internet while the document is being prepared, there is a disadvantage in that the Internet connection fee will be expensive if using a dial-up connection. Moreover, [the document] tends to consist primarily of text, and it is difficult to handle multimedia information such as images and audio. In order to improve on these issues, the following techniques have been invented.

[0005] According to JP H10-63592A, a bulletin board system is constructed by automatically converting the text of the electronic mail to HTML on the server side and by automatically generating an index table, as well. It also discloses a system for managing a bulletin board system by writing commands into the main text of the electronic mail.

[0006] [Problems that the Invention is to Solve]

The above conventional techniques have the following disadvantages.

[0007] During the registration process for the server, the directory can only be specified below the bulletin board system, and the registration cannot be carried out at a user-specific location.

[0008] During the registration process for the server, the user cannot specify an optional location.

[0009] A file attachment cannot be converted into an arbitrary format.

[0010] In order to overcome these disadvantages, a first aim of the invention is to register a document (file attachment) at a registration

location specified for each user or at a registration location optionally specified by the user.

[0011] Furthermore, a second aim of the invention is to provide a means for registering a document (file attachment) after converting it to any format specified by the user.

[0012] [Means for Solving the Problems]

The above aim is accomplished as follows. By using a system which is composed of a document sharing server utilized on a network and clients who prepare and view shared documents, a user prepares a document and sends the prepared document as a file attachment of electronic mail to a registration-only destination address. This sent electronic mail becomes loaded, and the file attachment becomes registered in a registration location in a storage device, from which the document sharing server reads, determined based on the sender address included in the header information as well as the user information, such as the mail address, registration location, personal certificate, etc., defined in the server in advance.

[0013] In addition, by describing a conversion command in the main text of the electronic mail sent from the client, the file attachment of the mail becomes converted before being registered in the document sharing server.

[0014] In addition, by describing user-optional registration location information in the main text of the electronic mail sent from the client, the registration location information can be updated, if desired, to a location other than the registration location defined in the user information.

[0015] [Embodiments of the Invention]

Figure 1 is a general structural drawing of the system of the invention during use in which electronic mail prepared by a mail client is sent to a document registration/updating system via a mail server and is then stored as a shared document and which is connected by document-viewing clients. Figure 2 is a structural drawing of a document registration/updating system of an embodiment of the invention corresponding to reference numeral 104 in Figure 1. /3

[0016] In the following, a first embodiment will be described.

[0017] A document to be shared is prepared in advance by the client 101 shown in Figure 1. This prepared document is then transmitted as a file attachment of electronic mail by a dedicated mail address, which is to be used for registration in a shared document managing device 102, being included in the mail header 202 as the destination address. Up to this point, the process is the same as the process used for regular electronic mail with a file attachment. The electronic mail that arrived at the registration-only mail address is handed over to a document registration/updating system 104 that uses the invention, and the process of Figure 2 is then started.

[0018] The mail information analysis part 207 indicated in Figure 2 is described in detail in Figure 3, and the server registration part 209 is described in detail in Figure 4. In Figure 2, the sent electronic mail is loaded onto the mail information analysis part 207 and becomes retained after being divided into a mail header 202, main text 203, file attachment 204, file attachment 205, and electronic signature 206.

Although the electronic mail 201 has two file attachments, 204 and 205, it only needs to have at least one.

[0019] The following is the process carried out when electronic mail arrives. The mail information analysis part 207 extracts the corresponding certificate and registration location information from user information 208, which is a table containing pairs of personal certificates (containing mail addresses) and registration location information and which is defined in the server in advance, by using the sender address included in the mail header 202 in step 302, and the process then advances to step 303. If no corresponding data is detected, electronic mail indicating that the registration cannot be executed due to a user authentication failure is sent to the sender address.

[0020] Next, a digest is generated from the mail and the individual public key included in the user information 208 in step 303, and the attached digest is compared for authentication in step 304. If the result of the authentication is a match, the registration location information and the incorporated file attachments, 204 and 205, are sent to a server registration part 209 (= step 401). At this time, there can be one or more file attachments.

[0021] If the result is not a match, it is determined that the message has been modified or spoofing has been attempted, and an authentication error process 306 is carried out. In the next server registration part 209, the file attachments, 204 and 205, are placed in the registration locations of the storage device 105 in step 402. After that, the registered documents are read by the document sharing server and become displayed

for document-viewing clients.

[0022] Next, a second embodiment will be described.

[0023] The invention of Embodiment 2 is the invention of Embodiment 1 combined with a document converting function and is a method that is compatible with various types of shared document managing devices. The system structure is illustrated in Figure 2 and is the same as that of Embodiment 1 except for the interiors of the mail information analysis part 207 and server registration part 209 which are changed as shown in Figure 5 and Figure 6.

[0024] The following is the process which is carried out according to Embodiment 2 when electronic mail arrives. The mail information analysis part 207 extracts the corresponding certificate and registration location information from user information 208, which is a table containing pairs of personal certificates (containing mail addresses) and registration location information and which is defined in the server in advance, by using the sender address included in the mail header 202 in step 502, and the process then advances to step 503.

[0025] If no corresponding data is detected, electronic mail indicating that the registration cannot be executed due to a user authentication failure is sent to the sender address. Next, a digest is generated from the mail and the individual public key included in the user information 208 in step 503, and the attached digest is compared for authentication in step 504.

[0026] If the result of the authentication is a match, the registration location information and the incorporated file attachments,

204 and 205, are sent to step 505. At this time, there can be one or more file attachments. If the result is not a match, it is determined that the message has been modified or spoofing has been attempted, and an authentication error process 506 is carried out.

[0027] Next, according to Embodiment 2, a conversion command name (e.g., a command, such as doc2html, for converting a Microsoft Word [Microsoft Word is a trademark of Microsoft Corp., USA] document into an HTML document) is described in the main text 203 of electronic mail in advance. After confirming the presence/absence of the command (i.e., presence/absence of the main text of the electronic mail) in step 505, the process advances to step 507, in which the presence/absence of the command is checked based on command definition information (which corresponds to the command name and the actual location of the conversion command) which was prepared in advance. If there is no command, an error process is carried out in step 510, and if there is a command, the location (e.g., /usr/bin/doc2html) of the conversion command is returned and is sent to step 509 together with the existing information, which is the registration location information and file attachments.

[0028] Next, the server registration part 209 advances to step 602, and the presence/absence of a conversion command is checked. If there is none, the process advances to step 606 via a process similar to that of Embodiment 1. If there is a command, the process advances to step 603. If the conversion command and its optional command for delivering and executing the file attachments succeed, the conversion result and registration location information are directly sent to step 606. If the

conversion fails, an error process (e.g., A message indicating a conversion failure is transmitted to the sender.) is carried out. In step 606, the file attachments or the converted files are placed based on the registration location information. Various types of conversion commands exist on the Internet. The details of doc2html mentioned in the example are found at <http://www.emacsy.com/>.

[0029] Next, a third embodiment will be described.

[0030] In the invention of Embodiment 1, the registration locations of the file attachments of electronic mail are determined based on the registration locations defined in the user information 208 in advance, but the registration locations can be easily changed not by changing the user information 208 but by registering them in the main text of the mail. /4

[0031] The structural drawing of the system is illustrated in Figure 2 and is the same as that of Embodiment 1 except for the interior of the mail analysis part 207 which is changed as shown in Figure 7. The following is the process which is carried out according to Embodiment 3 when electronic mail arrives. The mail information analysis part 207 extracts the corresponding certificate and registration location information from user information 208, which is a table containing pairs of personal certificates (containing mail addresses) and registration location information and which is defined in the server in advance, by using the sender address included in the mail header 202 in step 702, and the process then advances to step 705.

[0032] If no corresponding data is detected, electronic mail

indicating that the registration cannot be executed due to a user authentication failure is sent to the sender address. Next, a digest is generated from the mail and the individual public key included in the user information 208 in step 703, and the attached digest is compared for authentication in step 704.

[0033] If the result of the authentication is a match, the registration location information and the incorporated file attachments, 204 and 205, are sent to step 705. At this time, there can be one or more file attachments. If the result is not a match, it is determined that the message has been modified or spoofing has been attempted, and an authentication error process 706 is carried out.

[0034] In step 705, the presence/absence of the main text of the electronic mail is checked. If none is detected, the process advances to step 708, in which the registration location information defined in the user information 208 and file attachments, 204 and 205, are sent to the server registration part 209 and become processed in the same manner as Figure 4 of Embodiment 1. If the main text of the mail is detected, it is checked whether or not it is a directory, and if it is a directory, it will be used as registration location information as the process is advanced to step 708. If it is not a directory, it will be processed as an error in step 709.

#### [0035] [Effects of the Invention]

The invention demonstrates the following effects. Since documents can be automatically placed in registration locations that are fixed for the individual users of a document sharing device, a user can easily

register [information] in the personal site without having to be aware of the directory. Moreover, the invention can be readily put to practical use since an automatic conversion part such as that of the conventional technique is not essential.

[0036] Moreover, file attachments can be registered after being converted into a format arbitrarily chosen by the user by describing a conversion command in the main text of the electronic mail, there is an advantage in that the user does not need to have a conversion program installed in the local machine.

[0037] Moreover, an individual registration location other than the standard location can be written into the main text of electronic mail. Therefore, in addition to the ease of file registration, the convenience is increased even more since the user can place a file in any location.

[Brief Description of the Drawings]

[Figure 1] A drawing illustrating an example of a system structure of the invention during use.

[Figure 2] A block diagram showing the document registration/updating system of the invention.

[Figure 3] A flow chart for document registration updating that takes place in the information analysis part 207.

[Figure 4] A flow chart for document registration.

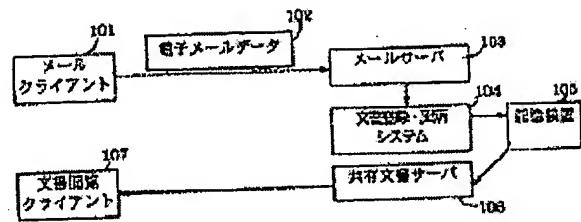
[Figure 5] A flow chart for a conversion process that takes place in the interior of the mail analysis part 207 in response to a command.

[Figure 7] A flow chart for a user-optional registration location specification that takes place inside the mail analysis part 207.

[Description of the Reference Numerals]

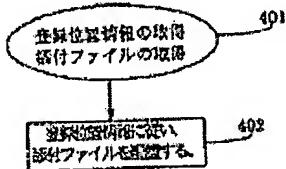
101 = mail client; 102 = electronic mail; 103 = mail server;  
104 = document registration/updating system; 105 = storage device;  
106 = document sharing device; 107 = document viewing client;  
201 = electronic mail data; 202 = mail header; 203 = main text of mail;  
204 = file attachment 1; 205 = file attachment 2;  
206 = electronic signature; 207 = mail information analysis part;  
208 = user information; 209 = server registration part; 301 = data loading;  
302 = user information acquisition; 303 = generation of a message digest;  
304 = digest comparison;  
305 = registration location information, file attachment output;  
306 = authentication error process; 401 = #305 data acquisition;  
402 = file attachment placing process; 510 = invalid command error process;  
601 = data loading; 707 = registration location information check.

[Figure 1]



Key: 101) mail client; 102) electronic mail data; 103) mail server; 104) document registration/updating system; 105) storage device; 106) document sharing server; 107) document viewing client.

[Figure 4]



Key: 401) acquisition of registration location information, acquisition of file attachments; 402) The file attachments are placed in accordance with the registration location information.